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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/762,952	03/12/2001	Atsushi Hayashi	108613	1943

7590 09/20/2005

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EXAMINER	
CAO, HUEDUNG X	
ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/762,952	HAYASHI, ATSUSHI	
	Examiner	Art Unit	
	Huedung X. Cao	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 8, 9, 13, 20, 21, 25, 32, 33, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by the "Centipede" video game by Atari Corp., 1980, 1981.

Reference is made herein to the article "Centipede Game" found at the web address: http://c2.com/cgi/wiki?CentipedeGame which describes the general operation and playing of the "Centipede" game. While the article itself may not, in itself, be prior art, it describes the how the "Centipede" game functioned and was played in the early 1980's, which is prior art, and this article is used only for explanation of the "Centipede" game by Atari.

With respect to claims 1, 8, 9, 13, 20, 21, 25, 32, 33, and 39, the "Centipede" game was an image generation system that comprised:

a memory which stores a program and data for image generation (as part of the motherboard in the gamer cabinet (see Figure #2, below), the program for creating the graphics and game play were stored in memory. Also, see he 5th-2nd last lines on the 1st page of the "Centipede Game" article which state "This is one of those games that

has been ported to just about every game system, personal computer, operating system, and keychain game case out there");

at least one processor which is connected to the memory and performs processing for image generation (the "Centipede Game" used a 6502 video processor);

the processor performing:

providing a shooter that shoots at an object (the player pilots a ship that fires up in a straight line)

generating a motion of an object formed by a plurality of parts, by moving an Nth part through a physical simulation based on hit information when the Nth part is hit and sequentially transmitting the hit information to the N+1th, N+2th, N-b3th ..... parts so that the N+1th, the N+2th, the N+3th ..... parts are sequentially moved through a physical simulation based on the transmitted hit information; and

generating an image including an image of the object on which the motion is generated. (As explained in the "Centipede Game" article, the "Centipede" is made up of a plurality of segments (see Figure #1, below), with a "head" segment and body/tail segments. These segments correspond to the claimed "parts". When a segment is "hit" (by a shot fired by the player), the hit segment (part) will go through a "physical simulation" (i.e., disappear and be replaced by a "mushroom" shape) and the "hit" information (i.e., the occurrence of a hit) to the other segments/parts of the "Centipede" so that they sequentially also go through a "physical simulation" (i.e., the other segments/parts will change depending upon their relative position to the segment hit. The adjacent segment will become a head and create a new "Centipede" which will

move of its own accord while the other segment will continue along its original path.) See the multiple "Centipedes" in Figure #1, below. Also, the "Centipede Game" article describes the "Centipede" as "Centipedes - consist of one or more attached segments which move horizontally through the playfield, moving one tile vertically when they hit the side of the screen, or a mushroom. Shoot a segment, and it will turn into a mushroom. If a centipede is split in half in this fashion, the segment behind the shot will form a head and you'll have two smaller centipedes to contend with." Further, see the section of the "Centipede Game" article titled "Splitting the Centipede" for additional discussion of the operation of the splitting of the "Centipede".

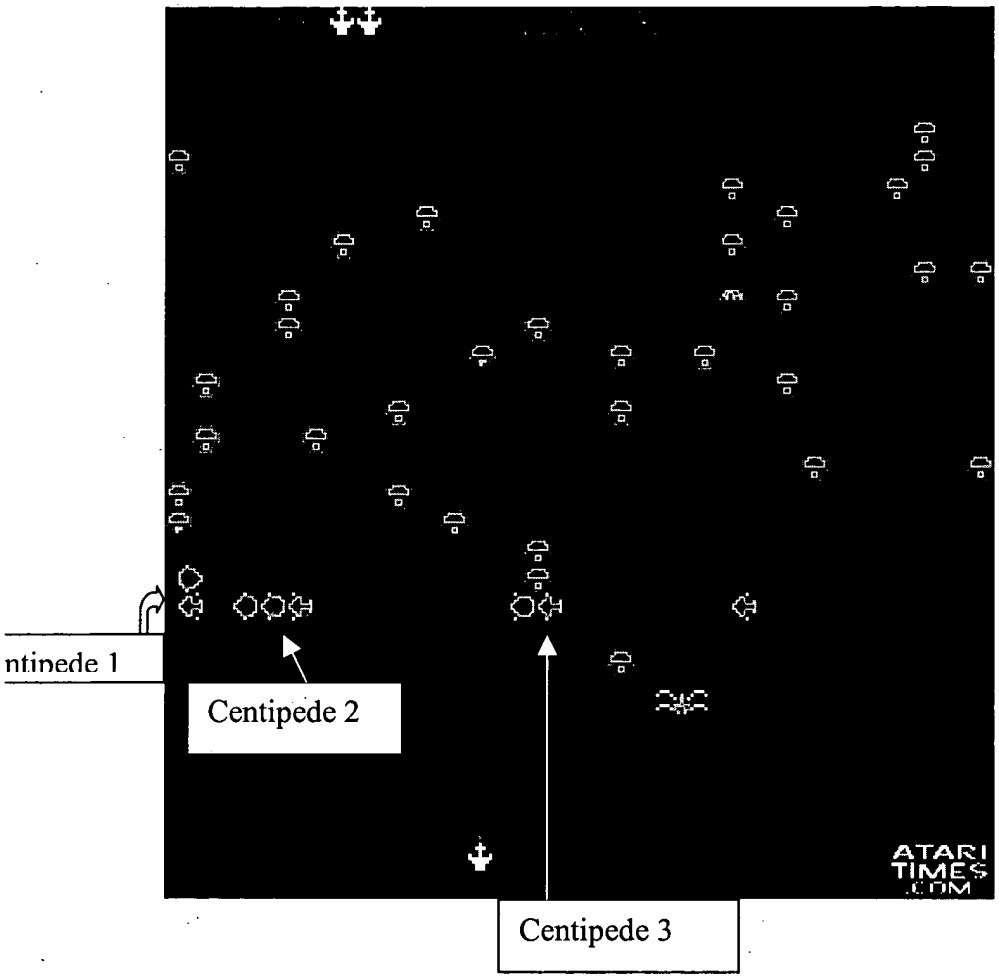

Figure #1.

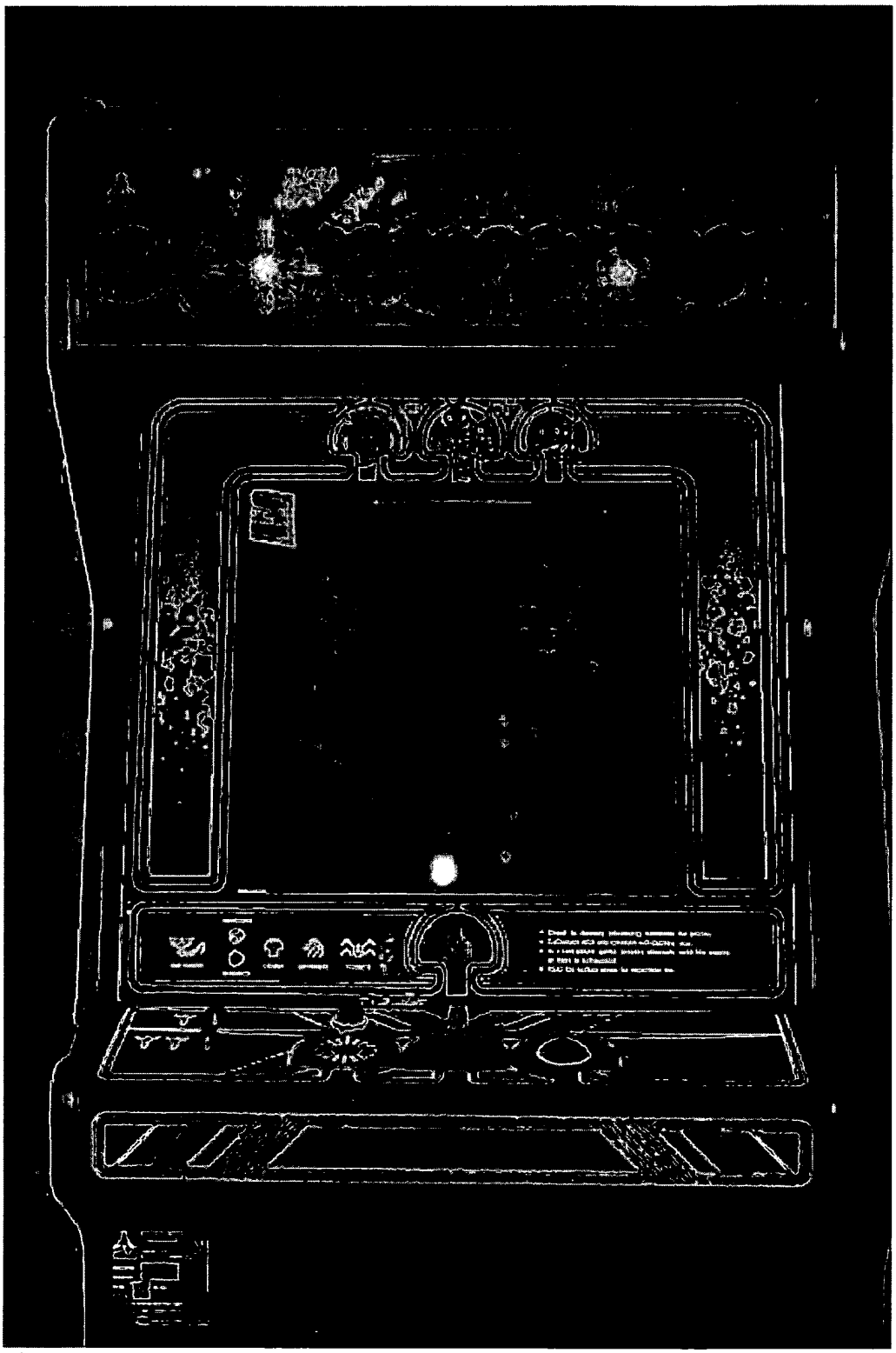

Figure #2

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over NAGLE (6,067,096) in view of MOORE et al. (Collision Detection and Response for Computer Animation) and further in view of the "Centipede" video game by Atari Corp., 1980, 1981.

As per claim 1, Nagle teaches the claimed "an image generation system" comprising: "a memory which stores a program and data for image generating" (Nagle, system memory 404); "at least one processor which is connected to the memory and performs processing for image generating, the processing performing generating a motion of an object formed by a plurality of parts" (Nagle, central processor 402, and figure 2A, body as a combination of joint parts), "by moving an Nth part through a physical simulation based on the hit information" (Nagle, column 8, lines 14-59) and "sequentially transmitting the hit information to the N+1th, N+2th, N+3th, ... parts so that the N+1th, the N+2th, the N+3th, ... parts are sequentially moved through a physical simulation based on the transmitted hit information" (Nagle, column 11, lines 7-30 and column 6, lines 23 to column 7, lines 28; Upon a movement or a collision, the other attached body parts (Figure 2A) will move depending upon the movements and

connections to other body parts (Figures 2B-2C). This is mentioned, for example, at column 2, lines 9-18, and column 4, lines 37-65 "FIG. 2B table of joints and joint properties contains sufficient information to determine the link structure of the joints of the character and the mass properties associated with the mass rigidly attached to each joint. Each joint entry has a joint name 31 and a parent joint 32, which may be null. This data defines the connections between the joints ..... The FIG. 2C table of body part properties contains the information used to define collidable bodies. Each body part name 38 is associated with an owning joint 39, and is described by a set of three-dimensional outline points 40. For the FIG. 2A model, for example, the FIG. 2C table can be considered to have two rows for the round body 26 and for the upper arm body 25, each associated with the owning shoulder joint 24. Each body part moves rigidly with its owning joint"); and "generating an image including an image of the object on which the motion is generated" (Nagle, column 4, lines 24-36). It is noted that Nagle does not explicitly teach the specific detection of collision or the specific detecting of "when the Nth part is hit" as claimed. However, Moore teaches such detection of "when the Nth part is hit" is well known in the art (Moore, page 290, column 1, collision detection). Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Moore, to configure Nagle's system as claimed because the detection of being hit yields a realistic scene and enhances the game animation and Nagle is directed to "generating realistic collisions" (title, for example). Furthermore, Nagle does not teach providing a shooter that shoots at an object. However, Centipede Game teaches providing a shooter that shoots in

which the player pilot a ship that fires up in a straight line and essentially destroy anything on the screen that moves. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Centipede Game, to configure Nagle's system as claimed because it's well known in the art that the shooter or player always be included in the game.

Claim 2 adds into claim 1 "the hit information is a force vector in the direction of hitting, and the processor further performing moving each of the parts through a rotation moment obtained by the force vector" which Nagle teaches in column 9, lines 36-50 (see also Moore, page 293, column 2, lines 12-14).

Claim 3 adds into claim 2 "sequential attenuating magnitude of the force vector while the vector force is transmitted to each of the parts" which Nagle teaches in column 10, lines 1-32 (see also Moore, page 295, column 1, figure 5).

Claim 4 adds into claim 1 "acting a rotational resistance force on each of the parts depending on the angular velocity of each of the parts" which Nagle teaches in column 16, lines 47-67.

Claim 5 adds into claim 1 "acting a restoring force for returning an object back to a given posture on each of the parts" which Nagle teaches in column 17, lines 20-62.

Claim 6 adds into claim 1"switching processing from a play of the object's motion based on pre-stored motion data to a generation of the object's motion through the physical simulation when the object is hit" which Nagle teaches in column 11, line 55 to column 12, line 6.

Claim 7 adds into claim 1 "switching processing from a generation of the object's motion through the physical simulation to a play of the object's motion based on pre-stored motion data when a given condition is satisfied" which Nagle teaches in column 16, line 64 to column 17, line 46.

Claims 13-19 claim a computer program based on the system of claims 1-7; therefore, they are rejected for the same reason (Nagle, column 17, lines 48-62).

Claims 25-31 claim a method based on the system of claims 1-7; therefore, they are rejected for the same reason (Nagle, column 17, lines 48-62).

As per claim 8, in addition to the above remarks, Nagle teaches the claimed "image generation system" comprising: "a memory which stores a program and data for image generating" (Nagle, system memory 404); "at least one processor which is connected to the memory and performs processing for image generating, the processing performing playing a motion of an object formed by a plurality of parts based on pre-stored motion data" (Nagle, central processor 402, and Figure 2A, body as a combination of joint parts. Further, this limitation also reads on the section of Nagle that discusses the animator creating an animation and playing back the animation sequence (column 3, line 52 to column 4, line 23), which is standard for both the prior art as well as Nagle), "generating the motion of the object through a physical simulation" (Nagle, column 4, lines 24-36) and "switching processing from a generation of the object's motion through a physical simulation to a play of the object's motion based on the motion data when a given condition is satisfied" (Nagle, column 16, line 64 to column 17, line 46).

As per claim 9, in addition to the above remarks, Nagle teaches the claimed "image generation system" comprising "a memory which stores a program and data for image generating" (Nagle, system memory 404); "at least one processor which is connected to the memory and performs processing for image generating, the processing performing playing a motion of an object formed by a plurality of parts based on prestored motion data" (Nagle, central processor 402, and figure 2A, body as a combination of joint parts), "generating the motion of the object through a physical simulation" (Nagle, column 4, lines 24-36) and "switching processing from a play of the object's motion based on pre-stored motion data to a generation o f the object's motion through a physical simulation when the object is hit" (Nagle, column 16, line 64 to column 17, line 46.

Claim 10 adds into claim 9 "switching processing from the generation of the object's motion through the physical simulation to the play of the object's motion based on the pre-stored motion data, in at least one of cases where a given time period has elapsed after the object has been hit and where a parameter relating to the object reaches a given value" which Nagle teaches in column 16, line 15 to column 17, line 46.

Claim 11 adds into claim 8 "causing the object to perform a connecting motion which connects a motion generated by the physical simulation with a motion played based on the pre-stored motion data" which Nagle does not explicitly teach. However, Moore teaches such "perform a connecting motion which connects a motion generated by the physical simulation with a motion played based on the motion data" is well known in the art (Moore, page 295, column 1,Articulated Rigid Bodies). Thus, it would have

been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Courtney, to configure Nagle's system as claimed because the transition states' occurrence during the collision yields a realistic scene and enhances the game animation.

Claim 12 adds into claim 9 "causing the object to perform a connecting motion which connects a motion generated by the physical simulation with a motion played based on the pre-stored motion data" which Nagle does not explicitly teach. However, Moore teaches such "perform a connecting motion which connects a motion generated by the physical simulation with a motion played based on the motion data" is well known in the art (Moore, page 295, column 1,Articulated Rigid Bodies). Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Courtney, to configure Nagle's system as claimed because the transition states' occurrence during the collision yields a realistic scene and enhances the game animation.

Claims 20-24 claim a computer program based on the system of claims 8-12; therefore, they are rejected for the same reason (Nagle, column 17, lines 48-62).

Claims 32-36 claim a method based on the system of claims 8-12; therefore, they are rejected for the same reason (Nagle, column 17, lines 48-62).

As per claim 37, Nagle teaches the claimed "an image generation system" comprising: "a memory which stores a program and data for image generating" (Nagle, system memory 404); "at least one processor which is connected to the memory and performs processing for image generating, the processing performing playing a motion

of an object formed by a plurality of parts based on pre-stored motion data" (Nagle, central processor 402, and figure 2A, body as a combination of joint parts), "generating the motion of the object through a physical simulation" (Nagle, column 8, lines 14-59) and "switching processing from a generation of the object's motion through a physical simulation to a play of the object's motion based on the pre-stored motion data when the object is hit" (Nagle, column 11, lines 7-30); and "causing to perform a connecting motion which connects a motion generated by the physical simulation with a motion played based on the motion data" which Nagle does not explicitly teach. However, Moore teaches such "perform a connecting motion which connects a motion generated by the physical simulation with a motion played based on the motion data" is well known in the art (Moore, page 295, column 1,Articulated Rigid Bodies). Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Courtney, to configure Nagle's system as claimed because the transition states' occurrence during the collision yields a realistic scene and enhances the game animation.

As per claim 38, Nagle teaches the claimed "an image generation system" comprising: "a memory which stores a program and data for image generating" (Nagle, system memory 404); "at least one processor which is connected to the memory and performs processing for image generating, the processing performing playing a motion of an object formed by a plurality of parts based on prestored motion data" (Nagle, central processor 402, and figure 2A, body as a combination of joint parts), "generating the motion of the object through a physical simulation" (Nagle, column 8, lines 14-59)

and "switching processing from a generation of the object's motion through a physical simulation to a play of the object's motion based on the pre-stored motion data when a given condition is satisfied" (Nagle, column 11, lines 7-30); and "causing to perform a connecting motion which connects a motion generated by the physical simulation with a motion played based on pre-stored the motion data" which Nagle does not explicitly teach. However, Moore teaches such "perform a connecting motion which connects a motion generated by the physical simulation with a motion played based on the motion data" is well known in the art (Moore, page 295, column 1,Articulated Rigid Bodies). Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Courtney, to configure Nagle's system as claimed because the transition states' occurrence during the collision yields a realistic scene and enhances the game animation.

Claims 39-40 claim a computer program based on the system of claims 37-38; therefore, they are rejected for the same reason (Nagle, column 17, lines 48-62).

Claims 41-42 claim a method based on the system of claims 37-38; therefore, they are rejected for the same reason (Nagle, column 17, lines 48-62).

Response to Arguments

5. Applicant's arguments filed 08/05/05 have been fully considered but they are not persuasive.

As to the remarks on pages 14-15, where applicant argues that the references do not show motion "based on pre-stored motion data", these are also not found to be convincing. Specifically, the claims recite "playing a motion of an object ... based on pre-stored motion data". This is the basis of animation (i.e., creating and storing motion for a body), which is what both of the references are directed towards. Further, as indicated above, Nagle discusses this at column 3, line 50 to column 4, line 23. By 1st creating the animation (movement) and then playing it back, the movements are "pre-stored" as broadly recited in the claims in that they are stored prior to the collision detection is performed. The claims do not require that the movements after the collision are "pre-stored" as applicant appears to be arguing.

Inquires

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

4. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Huedung Cao
Patent Examiner

WILSON LEE
PRIMARY EXAMINER